

***LineUp With Math™* Alignment**
Mathematics Content Standards and
Performance Standards (Grade Level Expectations) [PSGLEs]
Fourth Edition – March 2006

Content Standard A: Mathematical Facts, Concepts, Principles, and Theories

Content Strand: Estimation and Computation

Estimation:

PSGLE

The student solves problems (including real-world situations) using estimation by

[8] E&C-1 applying and assessing the appropriateness of a variety of estimation strategies (L) (M3.3.1)

***LineUp With Math™* Activities**

--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

--Explore and apply a variety of strategies to optimize the solution of air traffic control conflicts.

Computation:

PSGLE

The student accurately solves problems (including real-world situations) by

[8] E&C-3 using percents and percentages (e.g., tax, discount) (M3.3.3 & M3.3.4)

[8] E&C-5 using ratio and proportion (M3.3.6)

***LineUp With Math™* Activities**

--Use percent relationships to resolve distance, rate, time conflicts in air traffic control.

--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.

Content Strand: Functions and Relationships

Describing Patterns and Functions:

PSGLE

The student demonstrates conceptual understanding of functions, patterns, or sequences including those represented in real-world situations by

[8] F&R-3 describing in words how a change in one variable in a formula affects the remaining variables (how changing the length affects the area of quadrilaterals or volume of a rectangular prism) (M4.3.2)

***LineUp With Math™* Activities**

--Identify and resolve distance, rate, time conflicts in air traffic control problems by varying plane speeds or changing plane routes.

Content Standards B, C, D, and E: Process Skills and Abilities

Content Strand: Problem Solving

PSGLE

The student demonstrates an ability to problem solve by

[8] PS-1 selecting, modifying, and applying a variety of problem-solving strategies (e.g., inductive and deductive reasoning, Venn diagrams, making a simpler problem) and verifying the results (M7.3.2)

[8] PS-2 evaluating, interpreting, and justifying solutions to problems (M7.3.3)

LineUp With Math™ Activities

--Choose and apply a variety of strategies to optimize the solution of air traffic control conflicts.

--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

Content Strand: Communication

PSGLE

The student communicates his or her mathematical thinking by

[8] PS-3 representing mathematical problems numerically, graphically, and/or symbolically, translating among these alternative representations; or using appropriate vocabulary, symbols, or technology to explain, justify, and defend strategies and solutions (M8.3.1, M8.3.2, & M8.3.3)

LineUp With Math™ Activities

--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.

Content Strand: Reasoning

PSGLE

The student demonstrates an ability to use logic and reason by

[8] PS-4 generalizing from patterns of observations (inductive reasoning) about mathematical problems and testing using a logical verification (deductive reasoning); or justifying and defending the validity of mathematical strategies and solutions using examples and counterexamples (M9.3.1, M9.3.2, & M9.3.3)

LineUp With Math™ Activities

--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.

Content Strand: Connections

PSGLE

The student demonstrates the ability to apply mathematical skills and processes across the content strands by

[8] PS-5 using real-world contexts such as science, humanities, peers, community, and careers (M10.3.1 & M10.4.2)

LineUp With Math™ Activities

--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.